

EXECUTIVE SUMMARY

Santa Rosa County is a mix of urban, suburban and rural geography. A large portion of the County's 115,000 residents is concentrated in the central and southern regions of the County. The 1,027 square miles of varied geography and relatively small number of transports make Santa Rosa County a challenging area for emergency medical services (EMS).

The County contracts with Rural/Metro Ambulance to provide paramedic ambulance response and transport services. The current contract spans a 10-year period from 1996 to 2005. Rural/Metro receives no direct tax support from the County and operations are funded solely from patient fees for transports. Coverage is also supplemented by a small contract with Escambia County for Pensacola Beach.

Double-digit population growth has occurred in Santa Rosa in the past two decades and is expected to continue. Nevertheless, patient transports do not appear to have increased significantly over the past three years.

Santa Rosa's response time criteria are longer than other communities in Florida and the Nation. The influx of retirees from areas with sophisticated EMS services may result in pressure on County officials to improve service levels.

An assessment of desired and optimal EMS service levels in light of financial considerations may serve the community well. Contingency and long-range planning for EMS services are highly recommended for Santa Rosa County because of reliance on the volunteer system and continued population growth.

The County requested that the consultant review Rural/Metro's compliance with the contract provisions. The performance review is conducted from the viewpoint of the ill or injured patient.

Key Findings of the Review Include

- Rural/Metro consistently complies and betters current County contract performance provisions.
- Patient fees are comparable to other Florida communities with no tax subsidy operations.
- Santa Rosa's contract specified response times that are longer than other urban and suburban communities and may not be in the best interest of the patient. Paramedic staffed ambulances in Santa Rosa typically arrive in 14 to 16 minutes from call receipt in urban areas and within 22 to 24 minutes in rural areas at 90 percent reliability.¹
- There is no systematic, centralized analysis of the time from call receipt to arrival of fire department first responders who deliver basic patient care.²
- First responders provide a vital link in the response system. Individuals render first aid or basic life support and in a few instances, advanced life support (paramedic) care. In some areas (Gulf Breeze), police units are equipped with automatic external defibrillators (AEDs) to assist heart attack victims and boost outcome probability.

¹ The optimal EMS system delivers a first responder with defibrillation capability within four to six minutes of call receipt and a paramedic staffed ambulance within eight to twelve minutes of call receipt in Urban/Suburban areas.

² The County began to collect and report fire departments' response times within the past month.

METHODOLOGY

Fitch & Associates was asked to review the County's contract for ambulance services and assess compliance by Rural/Metro Ambulance. In addition to identifying compliance issues, the firm was asked to provide an overview and commentary on the County's EMS system.

The review was conducted based on data provided by the County's Emergency Communications Center (ECC) and Rural/Metro Ambulance. The County provided response time data, response analysis reports, contract and legislative documents, and demographic information. Rural/Metro provided financial reports that included personnel information, transport and response data, operational expenses and revenues. The County and Rural/Metro completed an extensive Information Data Request form.

The consultant met with the System Medical Director, County officials and staff, Fire Chiefs, Escambia County officials and Rural/Metro management and employees. Over 20 face-to-face and telephone interviews were conducted.

Data analysis included review of call volumes, response times, patient transfer records, operational budgets, contract documents and relevant system design features. Based upon the analysis of the accumulated data, findings were formulated to address the key objectives of the project.

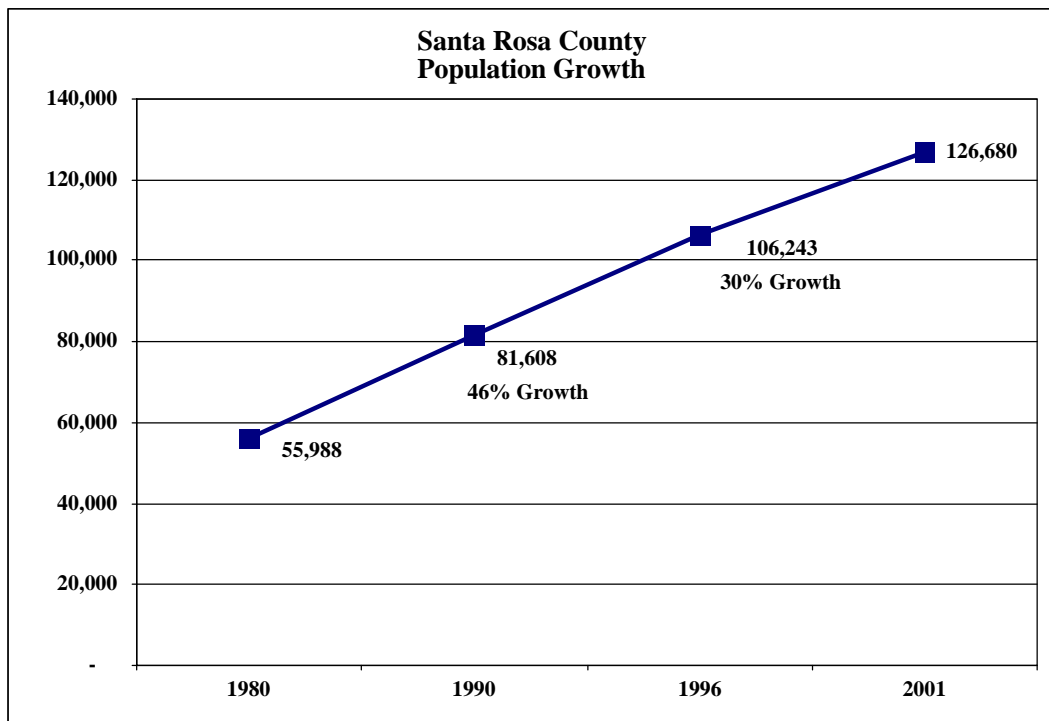
SYSTEM DESCRIPTION

General Description

Santa Rosa County is located in the western panhandle of Florida and has a uniquely diverse geography. The area ranges from beachfront with tourist facilities, residential communities and small businesses to remote, sparsely populated rural areas in the northern portion of the County. Much of the central County can be classified as suburban in composition and population density. The majority of the County's 115,000 residents live in the southern half of the County.

Santa Rosa County has experienced tremendous growth over the past two decades. Figure 1 displays the growth statistics.

Figure 1. Santa Rosa Population Growth



The population grew 46 percent from 1980 to 1990 and an additional 30 percent from 1990 to 1996. The Santa Rosa County Chamber of Commerce projects 19 percent growth from 1996 to 2001. The County has added half again as many people in the past decade.³

The Santa Rosa system answered approximately 7,640 calls for emergency medical services in FY99. This represents a two-percent increase from the prior year. Calls include life threatening and non-life threatening medical emergencies. Patient transfers to and from healthcare facilities represent approximately 1,860 calls or 20 percent of all responses.⁴

Figure 2 displays the emergency call history for three fiscal years (County fiscal year from October to September). Other communities have experienced some slowing of 911 calls.

Figure 2. Ambulance Call Trends

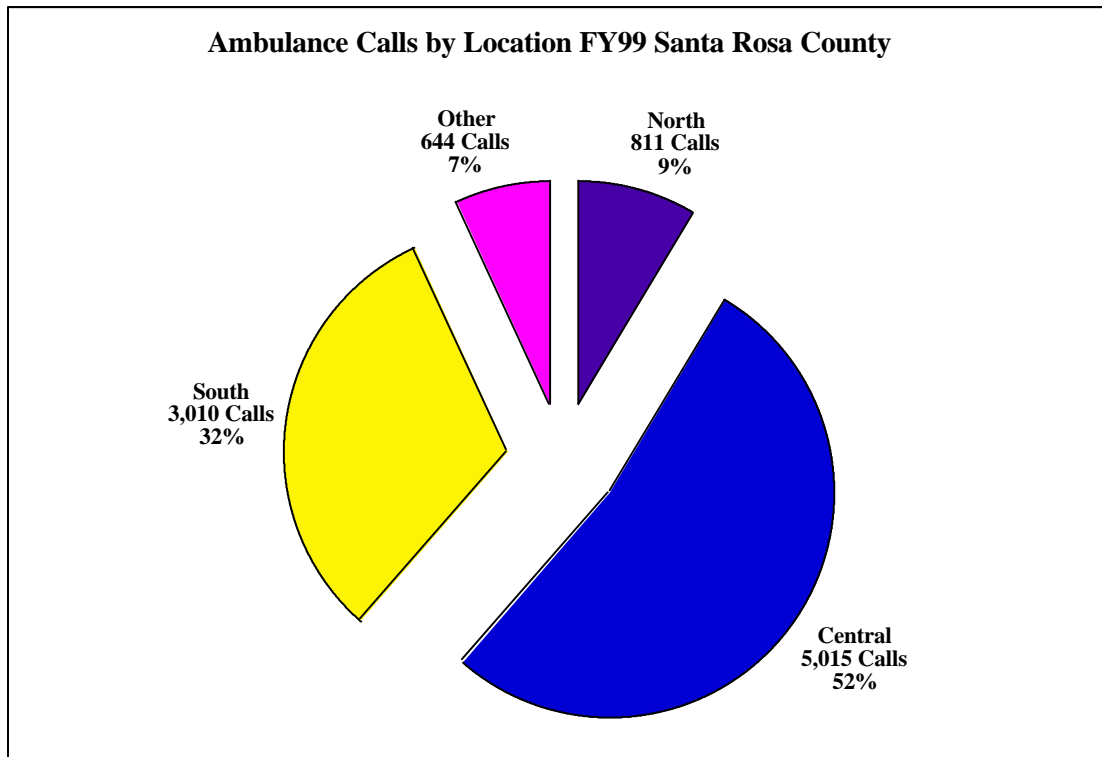
Error! Not a valid link.

Closer scrutiny of call sources, patient destinations, and the interplay of transfers would be of necessary for future planning efforts.

Calls are classified by location as north, central or south sector of Santa Rosa County. Calls occur predominantly in the central and south sectors (84 percent) about half or 52 percent occur in the central sector. Figure 3 depicts the distribution of all calls including transfers.

³ Santa Rosa County Demographics, Marketview Comparison Report dated 1/16/97. Provided by Santa Rosa Chamber of Commerce.

⁴ Four months FY99 transfer activity was sampled and annualized. Transfer calls are not usually segregated from statistics produced by the County. Prior to FY99, the County did not dispatch transfers.

Figure 3. Call Location – Santa Rosa County FY99

The “other” category is comprised of occasional calls that originate and terminate outside of the County. These include Veterans Administration patient transfers.

The County’s EMS system is a two-tiered system that simultaneously dispatches fire department units and Rural/Metro’s ambulances. Fire department personnel typically respond first to medical calls for service and provide basic first aid and basic life support (BLS) level care. The County contracts with Rural/Metro Ambulance as its exclusive provider of paramedic staffed and equipped (advanced life support) ambulances. Rural/Metro is the second tier response of the system. Across the nation the two-tier response system is common. Fire departments provide first response in the majority of

large US cities and counties and second tier paramedic care is provided by a number of organizational structures.⁵

The community is served by three hospitals of varying capabilities located in the north, central and south portions of the County. Three additional hospitals including two trauma centers are located nearby in Escambia County. Helicopter transportation is provided by Baptist Flight that serves the entire County.

Dispatch

Calls to 911 for fire and medical assistance are received by the County's Emergency Communications Center. The Center simultaneously alerts and dispatches fire department units from 17 fire agencies and Rural/Metro ambulances.

The Center uses the Medical Priority Dispatch System (MPDS) to determine the priority of the call. MPDS classifies a life-threatening emergency such as a heart attack as a priority over a non-life threatening call. The Center also receives requests for patient transfers to and from medical facilities. Handling requests for patient transfers allows the Communications Center to delay less critical patient transfers if ambulances are busy on other calls. Units can be diverted from lower priority calls to higher priority calls while en route when necessary.

The Communications Center also provides pre-arrival instructions to callers. Priority dispatching and pre-arrival instructions are components of an optimal EMS system. The MPDS and pre-arrival instruction processes are subject to quality assurance reviews by the system Medical Director.

⁵ Ambulance response organizations include not-for-profits and hospital based organizations, municipal and county services, and fire departments. "EMS in America's Most Populous Cities," Journal of Emergency Medical Services, February 1999.

The Communications Center maintains call volume and response time statistics for all EMS responders in the County. Monthly reports are published that review medical calls and Rural/Metro's response time performance. The County applies a 90 percent reliability method that is termed fractile response measurement. Fractile measurement is used by sophisticated EMS systems.

The Communications Center staff appear to maintain good working relationships with all providers in the Santa Rosa EMS system. The County directs annual State grants to the 17 fire departments to provide extrication equipment and expand AED use. These efforts ultimately accrue to the benefit of patients. The oversight role of the Communications Center is key to the smooth functioning of a system with numerous and diverse providers.

First Responders

First response to medical emergencies is provided by 17 fire departments funded as municipal services (City of Milton), municipal services benefit units (MSBUs) or fire taxing districts which provide stable funding sources. Fire department personnel vary in their medical certification levels from Certified First Responders to Emergency Medical Technicians (EMTs). Care is provided at the Basic Life Support (BLS) level.

The fire departments also vary in their staffing levels and methods. The City of Milton is a paid fire department with 24-hour/seven days a week staffing. Some departments are staffed completely with volunteers and others are a combination of paid or on-call daytime staff and volunteer personnel in the evenings and on weekends.

Response time statistics for fire department responses are not readily available. System stakeholders and ultimately patients could benefit from enhanced reporting and analysis of first responder data.⁶

⁶ The County began to accumulate and report fire department statistics within the past 60 days.

The various system participants express a high regard for the first responder fire departments. Fire personnel are typically the first on the scene to render care to patients and rarely scratch (no show) on life-threatening calls. A number of Rural/Metro paramedics volunteer in the community fire departments. When they arrive on calls, they are allowed to render care as paramedics under the Medical Director's license and are, at that point, Rural/Metro employees. This cooperative arrangement benefits patients.

Paramedic Ambulance Services

The County contracts exclusively with Rural/Metro Ambulance for paramedic ambulance response and patient transport (emergency, non-emergency and transfers). Rural/Metro, Inc. is a publicly traded corporation with over \$300 million in assets. The company is the nation's largest provider of private fire service and the second largest provider of ambulance transports. The Santa Rosa County contract is for the ten-year period 1996 to 2005 and includes provisions for four additional five-year periods (a potential 30-year term).

Rural/Metro employs 37 full and part-time paramedics and 49 full and part-time EMTs. This profile is typical of paramedic ambulance services. In 1996, Rural/Metro, Inc. took over an existing service, Santa Rosa Emergency Medical Service, Inc., that was operated by a health trust. A number of employees have remained with the service over the years as it changed from a County service and then through several private models.

Rural/Metro deploys a minimum of four ambulances on Sundays through Thursdays until 10 p.m. when one ambulance is removed until 6 a.m. On Fridays and Saturdays, four ambulances remain in service until midnight when one is removed until 6 a.m. On weekdays, there are typically five to six ambulances operating throughout the County. All units are available to the County for calls, but four are dedicated to 911 responses.

In FY00, the company expects to provide 40,702 staffed ambulance hours (unit hours), respond to 10,065 calls and complete approximately 7,467 transports in Santa Rosa County.⁷ Approximately 26 percent of Rural/Metro responses do not result in a patient transport. This is typical of a service that responds to 911 calls.

Unit hour utilization (UhU) is a measure of productivity for ambulance services. This measure is of particular importance to a provider receiving no operating subsidy. The number of transports (opportunities for revenue) is divided by the number staffed ambulance hours to produce a UhU factor. A larger number indicates that ambulances are transporting more frequently thereby maximizing opportunities to produce revenue.

Hospital turn-around times, ambulance restocking and cleaning and in-service training are typical factors that diminish unit hour utilization. Other factors that reduce UhU are stringent performance criteria that require extraordinary coverage, large or unusual geographic coverage areas, and a large proportion of responses that result in no transports.

Several factors are present in Santa Rosa County. The geographic coverage area is extensive and requires that units be located in areas of low call and low transport demand (north area); travel times to hospitals can be lengthy; and one fourth of all calls require response performance but do not result in a transport.

High performance EMS providers reach UhU measurements that range from a low of .239 to a high of .49 UhU.⁸ These providers operate in EMS systems with a high numbers of transports that allow for creative and flexible deployment patterns. Rural/Metro in Santa Rosa has .183 UhU. The relatively small UhU factor reflects the

⁷ Rural/Metro's fiscal year is from June to July.

⁸ Market Study, January 1998, National Association of Public Utility Models.

small number of transports and the need to provide coverage in north areas with few transports.

Medical Direction

The County and Rural/Metro employ Dr. Peter Manis as the system Medical Director. Dr. Manis performs this service at no cost to the County, which is typical in communities and systems the size of Santa Rosa County. He works with first responders and ambulance employees in training and certification issues, develops protocols, reviews the dispatch center for MDPS quality assurance, and reviews run reports. Dr. Manis is an emergency room physician at West Florida Regional Medical Center and has been the medical director for at least a decade.

Dr. Manis' comments regarding the system and in particular Rural/Metro employees are included as Attachment 1.

CONTRACT COMPLIANCE

EMS performance criteria are addressed in two County documents: County Ordinance 87-54, passed by the Santa Rosa County Commission on December 11, 1987 and the Agreement between Rural/Metro of North Florida and Santa Rosa County for Ambulance and Emergency and Non-Emergency Medical Services, dated May 16, 1996. There are four primary criteria outlined in the two documents:

1. Exception reports are required for calls that exceed 20 minutes and in instances where more than two minutes elapse between receipt of an emergency call and having an ambulance en route (Ordinance).⁹
2. Response times in the urban designated area shall be 12 minutes, zero seconds or less on at least 90 percent of emergency requests as determined by protocols (Contract).
3. Rural/Metro must maintain three locations and four fully staffed ambulances (north, central, and south). The Commission amended this section to allow for a reduction from four units to three units from 10:00 p.m. to 6:00 a.m. Sunday through Thursday and from midnight to 6 a.m. on Saturday and Sunday. (Contract).
4. All vehicles previously owned by Santa Rosa EMS are to be retired and no vehicle is to exceed five years of age beginning at the point of five years from the date of the Contract (Contract). This provision goes into effect in either February or May of 2000 depending on the contract start date.

The contract with Rural/Metro includes a map displaying the designated urban area; the remainder of the County is deemed rural. However, the County's dispatch and records system does not reflect the contract map and instead locates calls in one of three zones: north, central and south. Generally stated, calls in the central and southern zones, the

⁹ The contract includes response criteria only for the urban area. The Ordinance calls for "prompt service" that should not exceed 20 minutes. The County interprets this as 20-minute performance criteria for the rural areas.

area of the County south of Jesse Allen Road (south of Allentown) are included in the urban designation. Calls occurring at Jesse Allen Road north to the County line are included in the north zone. The result is that more area is included in the urban designation, the area with shorter response time criteria, than is delineated in the contract provisions.

Compliance is measured based on the number of emergency calls that have response times longer than the performance criteria.¹⁰ These exceptions are not to exceed 10 percent of all calls thereby resulting in 90 percent compliance. The Communications Center staff reviews exceptions and Rural/Metro completes a special report on each call.

The manner by which response times are arrayed and reviewed could be expanded to allow for a more comprehensive analysis. More stringent criteria can be applied by determining compliance within the urban zone (central and south) and within the rural zone (north) separately. The County applies the criteria by aggregating the two zones together. The County also includes Alpha level and patient transfer calls (both non-emergency) in the base against which compliance is measured. This practice could tend to dilute the compliance.

Figure 4 displays compliance analysis in the urban and rural zones individually over the past 14 months. This is compared to the County's methodology of aggregate compliance.

Figure 4. Rural/Metro Contract Compliance

Error! Not a valid link.

¹⁰ Emergency calls are those classified by Medical Priority Dispatch as Delta, Charlie and Bravo calls. Ambulances responding to Alpha (non-emergency) calls do not use lights and sirens.

Rural/Metro meets and betters the contract response time requirements in each of the 14 months in Figure 1 using the County's aggregate zone method. Urban compliance ranges from a low of 91 percent in March 1999 to a high of 95 percent in November 1999.

Using the individual zone compliance method, Rural/Metro's again complies and betters with the performance criteria in all 14 months for the urban area. In this case, compliance ranges from a low of 90.7 percent in March 1999, zero to high of 95.3 percent in November 1998.

In the rural area, a criterion of a 20 minutes, zero second response time on 90 percent of calls was met eight of the 14 months measured when the individual zone was analyzed. The compliance percent in the rural zone ranges from a low of 88.2 percent in October 1998 to a high of 98.0 percent in July 1999.

Santa Rosa begins response time measurement from the time the ambulance is en route to a call.¹¹ Up to two minutes is allowed for call processing and another two minutes for dispatched units to get en route. Up to four additional minutes are possible on each response. What appears to be an allowable 12 minute response time for the urban area can be 14 to 16 minutes from the patient's viewpoint (when 911 receives the call). Similarly, the 20-minute response time in rural areas is actually a 22 to 24 minute allowable response time from call receipt time.

¹¹ The Ordinance and the Contract are in conflict on the response time definition. The Ordinance language is used for compliance.

BENCHMARKS FOR EMS SYSTEM PERFORMANCE

Clinical Performance

There are several indicators of clinical excellence in the EMS system: central 911 receipt, medical priority dispatch, pre-arrival instructions to the caller, rapid and appropriate arrival of first responder and paramedic level care, and medical oversight.

The optimal system provides a central location for receiving all 911 requests. Standard procedures to interrogate a caller and quickly determine the needs and priority of those needs can have an impact on clinical outcomes. Within 30 seconds of answering a 911 call, the optimal system will identify the location of the incident, the severity of the incident and the resources required to respond. Emergency medical dispatch (EMD) allows the call-taker to deliver prearrival instructions to bystanders to the patient's family. The patient's suffering can be alleviated or the patient can be stabilized prior to arrival of emergency response personnel.

The Santa Rosa Emergency Communications Center meets several the benchmarks of the optimal system. Priority dispatch, phone protocols and prearrival instructions are standard for the Center. Quality assurance of EMD certified dispatchers is ongoing and measures compliance to medical protocols and call-processing times.

The optimal system delivers a first responder with EMT-defibrillator capability to the patient's side within four to six minutes of call receipt. Response times for first responders are largely a function of resource availability.

In urban areas, if the system does not provide ALS level care at the first responder level, then paramedic ambulances should arrive within eight to twelve minutes of dispatch.

This time frame depends upon the geography, density, and demographics of the service areas and the level of performance of the first responder agencies.

Santa Rosa first responder times are not systematically recorded and analyzed. It is likely that response times do not meet the optimal standard due to variations in certification levels and staffing issues surrounding volunteer agencies. Measurement and monitoring of first responder response times is a critical element for ongoing system assessment and planning in Santa Rosa County.

Santa Rosa response times approach the outside limits deemed clinically acceptable. Paramedic level care is provided to Santa Rosa patients within 14 to 16 minutes on 90 percent of calls in the central and southern parts of the County and within 22 to 24 minutes in the northern sector of the County. First responder care levels range from first aid and CPR to Emergency Medical Technicians. A few first responders in the County can provide paramedic level care but no agency consistently provides paramedic first response. In this system design, early arrival of paramedic units is more critical.

Operational Performance

Efficient EMS systems deploy units in a flexible manner such that the unit hours are matched closely with call demand. To achieve significant operational efficiencies, a larger number of calls are needed than are experienced in Santa Rosa County. Rural/Metro exercises flexible deployment to the extent that the system allows. Rural/Metro enjoys exclusivity for emergency, non-emergency and transfer calls in Santa Rosa. Exclusivity is important in this market as it adds certainty to the transport base and provides a small degree of economy of scale. The need for coverage drives most of Rural/Metro's operational decisions. Units can be redeployed within only a narrow area to affect response times due to expansive geographic coverage needs and low volume.

Financial Performance

Financial benchmarks for EMS systems include the costs of first responders, dispatch services, oversight, and ambulance operations (subsidies and patient fees). Determining system costs is a process that is beyond the scope of this project. Nevertheless, general comments can be offered regarding Santa Rosa EMS system costs.

First responders are funded through taxpayer dollars based on several different methodologies. The funding mechanisms provide the Santa Rosa volunteer fire departments with a more stable financial base than volunteer departments that rely solely on donations. Extensive use of volunteers provides Santa Rosa with an adequate level of fire and emergency medical response at a relatively minimal cost. Of the 17 fire departments, only the City of Milton and Whiting Field employ full-time, fully paid fire and EMS personnel.

Ambulance services can be benchmarked against high performance systems and against similar EMS systems. In Santa Rosa, ambulance services are funded through patient fees. Rural/Metro receive no local taxpayer subsidy. Patient fees are a system cost but are borne by the system users, private and government insurance programs. Rural/Metro's fees are authorized by the County and are allowed an annual adjustment. The fees are comparable to those charged by other Florida and southeastern ambulance providers. The average charge for a patient including mileage is \$524.85.

Ambulance providers are frequently compared based on various unit costs such as those depicted in Figure 5.

Figure 5. Rural/Metro Unit Costs

Error! Not a valid link.

Costs include corporate overhead, bad debt and depreciation, and profits. Costs do not include the cost of dispatch, which is provided by the County. Given the characteristics of the Santa Rosa system, Rural/Metro's costs compare well against other similar providers.

OPTIONS FOR THE FUTURE

The “linchpin,” or key element, in the Santa Rosa system is the first responder effort. Santa Rosa’s volunteer fire departments appear to meet their response commitments even though volunteer organizations in other areas experience increasing difficulty responding during workdays. Any loss of volunteer performance will have a direct impact the EMS system and possibly patients.

Monthly tracking of fire department response times was recently initiated by the Emergency Communications Center. Any weaknesses in the first response tier and interplay between fire department and ambulance response times can be pinpointed. This analysis will provide information essential for future EMS planning efforts.

Rural/Metro performs to the level of the contract specifications. Operating efficiencies, which are limited by the need for basic coverage of a large area, appear maximized. Rural/Metro is not obligated to increase unit hours to provide shorter response times.

The current year ambulance services contract with Rural/Metro Ambulance extends until the year 2005. Between now and 2005, the County is likely to experience the continuing pressures of population growth and citizen expectations for more services at the same or lower cost. During that same time, Rural/Metro and all ambulance providers anticipate pressure from Medicare in the form of reduced reimbursements (patient fees) and continued medical necessity compliance issues.

Should the County desire shorter response times, these could be achieved through negotiations with Rural/Metro for more ambulance hours. More hours will likely require tax subsidy, as increased user fees may not yield a significant net additional contribution

of revenue to the system. The County could request a series of options for varying levels of response time improvements at various cost inputs.¹²

The current County contract is performance based and states the “County is interested only in the results obtained under this Agreement.” This is a prudent policy particularly in the specialized area of ambulance services. However, there are areas of the Contract that could be strengthened. Examples include:

- providing a common definition for response time measurement;
- clarifying how to determine zone compliance; and
- matching the urban and rural zones with computer reporting capability.

In addition, prior to the contract renewal, the Commission may wish to determine appropriate service levels (response times). Designating three distinct response time zones (urban, suburban and rural) is recommended and will more readily accommodate growth patterns of the County. Finally, any new contract for services should include meaningful (painful) penalties for non-performance to preserve and guard service levels set by the Commission.

Other areas for EMS system improvement include a strong emphasis on public education. Mass CPR training events, injury prevention classes and disbursement of automatic external defibrillators (AEDs) to law enforcement personnel are methods which have improved patient outcomes in other communities. These efforts will be most effective with a coordinated regional (County) approach.

¹² As an example, the addition of an eight-hour ambulance, seven days a week would cost between \$190,000 and \$250,000 based on incremental or full costing methods, respectively. The County and Rural/Metro should together determine the effect of additional unit hours on response times.